

Claims

- [c1] 1.A heat shield structure for use in sealing of an arc tube, said heat shield structure comprising:
a plurality of layers of alternating thermally conducting material and thermally non-conducting material.
- [c2] 2.The heat shield structure of claim 1, wherein said thermally conducting material comprises refractory metals.
- [c3] 3.The heat shield material of claim 2, wherein said thermally conducting material is selected from the group consisting of tungsten and molybdenum.
- [c4] 4.The heat shield structure of claim 1, wherein said thermally non-conducting material comprises high temperature, thermally insulating materials.
- [c5] 5.The heat shield structure of claim 4, wherein said thermally insulating material is selected from the group consisting of argon, xenon, krypton, neon, zirconia, boron nitride, alumina, magnesia, calcia and any mixtures thereof.
- [c6] 6.The heat shield structure of claim 1, further comprising a thermal contact between said heat shield and a carrier block, said carrier block holding the arc tube in place while sealing, and said thermal contact maintaining a low temperature of the arc tube body to prevent evaporation of the halide dose.
- [c7] 7.The heat shield structure of claim 6, wherein said carrier block comprises a cooling fluid.
- [c8] 8.The heat shield structure of claim 7, wherein said cooling fluid is selected from the group consisting water ethylene glycol, helium, and nitrogen.
- [c9] 9.The heat shield structure of claim 6, wherein said thermal contact comprises physical contact of a lower layer of said conducting material of said heat shield structure with said carrier block.
- [c10] 10.The heat shield structure of claim 6, wherein said thermal contact comprises physical contact of a plurality of layers of said conducting material of said heat shield structure with said carrier block.

- [c11] 11.The heat shield structure of claim 1, wherein said arc tube comprises a ceramic tube and a pair of arc tube legs attached at respective ends of said ceramic tube.
- [c12] 12.A method for at least one sealing arc tube while preventing cracking of said tube, said method comprising:
sealing a pair of electrodes on said arc tube, said sealing being implemented using a furnace; and
implementing a heat shield adapted for reducing the thermal gradient generated in said furnace, said heat shield comprising alternating layers of thermally conducting materials and thermally non-conducting materials.
- [c13] 13.The method of claim 12, wherein said thermally conducting material comprises refractory metals.
- [c14] 14.The method of claim 13, wherein said thermally conducting material is selected from the group consisting of tungsten and molybdenum.
- [c15] 15.The method of claim 12, wherein said thermally non-conducting material comprises a high-temperature, thermally insulating material.
- [c16] 16.The method of claim 15, wherein said thermally non-conducting material is selected from the group consisting of argon, xenon, krypton, neon, zirconia, boron nitride, alumina, magnesia, calcia and any mixtures thereof.
- [c17] 17.The method of claim 12, further comprising maintaining thermal contact between said heat shield and a carrier block.
- [c18] 18.The method of claim 17, wherein said maintaining comprises maintaining physical contact of a lower layer of said conducting material of said heat shield structure with said carrier block.
- [c19] 19.The method of claim 17, wherein said maintaining comprises maintaining physical contact of a plurality of layers of said conducting material of said heat shield structure with said carrier block.